...GN AND DEVELOPMENT OF A MICROCONTROLLER-BASED BLUETOOTH-ENABLED VIDEO OVERLAYING DISPLAY BOARD

Design Project

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Undergraduate Design Project
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ABSTRACT

CRUZADA, ANDREW GERALD P., JHON MICHAEL M. GARCIA, JUVILYN S. GARCIANO and REYDAN P. SOLOMON. Design and Development of a Microcontroller-Based Bluetooth-Enabled Video Overlaying Display Board. Undergraduate Design Project. Bachelor of Science in Computer Engineering and Bachelor of Science in Electronics and Communications Engineering. Cavite State University, Indang, Cavite. April 2009. Adviser: Mr. Bienvenido C. Sarmiento Jr.

The Design and Development of a Microcontroller-based Bluetooth-enabled Video Overlaying Display Board was conducted with the objective of designing and developing a microcontroller-based Bluetooth enabled overlaying display board.

The Video Overlaying display board displays accurate, real-time and multi-purpose display board. It uses wireless technology for data transfer, and applies the Bluetooth technology.

The Microcontroller-based Bluetooth-enabled Video Overlaying Display Board is composed of hardware and software. Assembly language was used to develop the software. The hardware is composed of : PIC16F877 for the Microcontroller, BOB-4 for the video overlay module, LM7805CK for the series voltage regulator, Max220 for the Multi-channel RS232 driver/receiver, EGBC-04 for Bluetooth Module, 5.6" Digital frame for the static information source, 1.5 GHz Intel P4 Processor, 14" CRT Monitor and keyboard and mouse for the Information Source and Matrix 32" LCD TV Monitor for the Display Board.

The Display Board presents the static information stored in the memory card of the digital frame while simultaneously displaying the messages from the video overlay

circuit sent by PC that served as the information source. The connectivity of the video overlay circuit and PC is established by the Bluetooth present in both hardware.

Wireless transmission between the PC and the Overlaying Circuit was attained through the use of the Bluetooth. The maximum distance of the Bluetooth was 9.3 meters, and its signal cannot pass through the concrete walls. The transmission of message was only possible once the Bluetooth in both PC and Video Overlay Circuit has established a connection. The images displayed in the board appeared in 1366 x 768, 16:9 HD resolution. The transmission rate of message from PC to overlay circuit was 0.5 seconds. The total cost of the project was P 54, 216 .00

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Cruzada, Andrew Gerald P.
Garcia, Jhon Michael M.
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[1/] An undergraduate design project presented to the faculty of Department of Computer and Electronics Engineering, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfillment of the requirements for graduation with the degree of Bachelor of Science in Electronics and Communications Engineering (BSECE) and Computer Engineering (BSCoE) with Contribution no.BSECE–2008–2009–001. Prepared under the supervision of Mr. Bienvenido C. Sarmiento Jr.

INTRODUCTION

Consistent with the trend in recent years of enlarging the size of display monitors, the public display which enables the transfer of various types of information to the public domain has been benefiting from a growing market. Nowadays, information is displayed in public spaces such as shopping malls, airport lobbies, and museums. Information that are to be communicated in a paper media is now replaced by electronic data and information including texts, drawings and photos, are displayed to the public much more effectively.

The design and development of a microcontroller-based video overlaying display board will be used for the dissemination of information about the college activities and faculty announcements for the students.